

Description

- 155°C maximum total temperature operation
- Surface mount inductors designed for higher speed switch mode applications requiring lower inductance, low voltage and high current
- Design utilizes high temperature powder iron material with a non-organic binder to eliminate thermal aging
- Inductance range from 0.22 uH to 4.81 uH
- Current range from 35.8 to 9.8 Amps
- Frequency range 1kHz to 500kHz



Applications

- Next generation microprocessors
- High current DC-DC converters
- VRM, multi-phase buck regulator
- PC, Workstations, Routers
- Telecom soft switches, Base Stations

Environmental Data

- Storage temperature range: -40°C to +155°C
- Operating ambient temperature range: -40°C to +155°C (range is application specific)
- Solder reflow temperature: +260°C max. for 10 seconds max.

Part Number	Rated Inductance μ H	OCL (1) nominal +/-20% μ H	Irms (2) Amperes (Typ.)	Isat (3) Amperes 15% rolloff	Isat (4) Amperes 30% rolloff	DCR (m Ω) max. @ 20°C	Volts (5) μ Sec (V μ S)
HC7-R20-R	.20	0.220	35.80	45.8	86.5	0.67	2.27
HC7-R47-R	.47	0.534	23.40	27.5	51.9	1.60	3.83
HC7-1R0-R	1.0	1.05	20.30	19.6	37.1	2.10	5.36
HC7-1R5-R	1.5	1.73	14.20	15.3	28.8	4.30	6.90
HC7-2R2-R	2.2	2.58	13.00	12.5	23.6	5.20	8.40
HC7-3R9-R	3.9	3.61	10.40	10.6	20.0	7.90	10.0
HC7-4R7-R	4.7	4.81	9.80	9.2	17.3	9.00	12.6

1) Test Parameters: 100KHz, 1.0Vrms

2) Irms Amperes for approximately ΔT of 40°C above 85°C ambient

3) Isat Amperes Peak for approximately 15% rolloff (@20°C)

4) Isat Amperes Peak for approximately 30% rolloff (@20°C)

5) Applied Volt-Time product (V- μ S) across the inductor. This value represents the applied V- μ S at operating frequency necessary to generate additional core loss which contributes to the 40°C temperature rise. De-rating of the Irms is required to prevent excessive temperature rise. The 100% V- μ S rating is equivalent to a ripple current I_{p-p} of 20% of Isat (30% rolloff option).

It is recommended that the temperature of the part not exceed 155°C under worst case operating conditions verified in the end application.

Packaging

- Supplied in tape and reel packaging, 610 parts per reel

Units supplied in tape and reel packaging. 13" reels 610 parts per reel.
Carrier tape width = 24 mm. Meets EIA standard

Part number definition:

HC7-XXX-R

HC7 = Product code and size

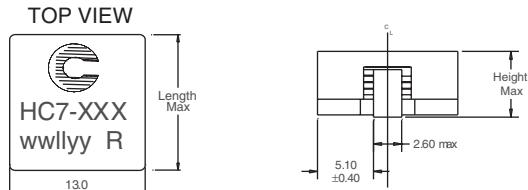
XXX = Inductance value in uH.

R = Decimal point. If no R is present, third character = # of zeros

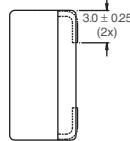
-R suffix indicates RoHS compliant

Mechanical Diagrams

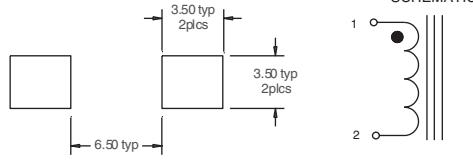
FRONT VIEW



SIDE VIEW



RECOMMENDED PCB PAD LAYOUT



Maximum Dimension

Part Number	Height mm	Length mm
HC7-R20-R	6.0	14.25
HC7-R47-R	5.5	13.8
HC7-1R0-R	5.5	13.8
HC7-1R5-R	5.5	13.8
HC7-2R2-R	5.5	13.8
HC7-3R9-R	5.5	13.8
HC7-4R7-R	5.5	13.8

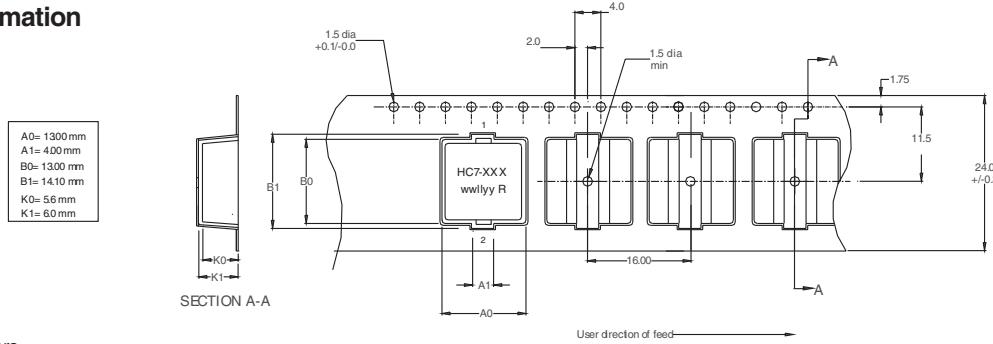
Dimensions in Millimeters.

All dimensions l +/- 0.2 mm unless otherwise specified.

All soldering surfaces are coplanar within 0.15 mm.

wwllyy = Date code R = Revision level

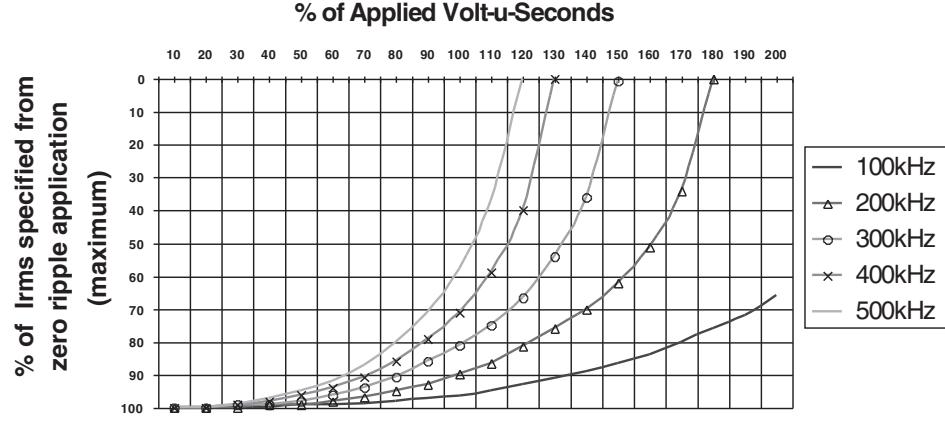
Packaging Information



Dimensions in Millimeters

Core Loss

IRMS DERATING WITH CORE LOSS



Inductance Characteristics

Inductance vs. I_{dc}

